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ABSTRACT

The second year of a 2-year study on the benefits of using handicapped students to tutor nonhandicapped peers focused on the effects of having all students in a special class tutor simultaneously (the total class tutoring method). Forty intellectually handicapped students (IQs ranging from 50 to 75) tutored 60 nonhandicapped agemates in basic sign language (learned previously in the special class setting). The program was evaluated based on free-play observations, parent interviews, teacher interviews, and tutoring observations. The free-play observations indicated a significant increase in the time spent by handicapped students interacting with nonhandicapped students after tutoring began, suggesting the positive impact of reverse role tutoring on the social acceptance of handicapped students. In interviews with 20 parents of tutors, most parents reported their child as having positive feelings about the program, improved social interactions, improved self-esteem, and improved communication skills. Results of interviews with the three special class teachers indicated that all of the teachers perceived significant benefits from the tutoring program. The regular class teachers who were interviewed indicated the greatest benefit was the opportunity for their students to develop friendships with handicapped students. Finally, observations of the tutoring sessions indicated that students maintained the tutor/tutee relationship and tutors consistently performed basic tutoring skills. (DE)

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Intellectually Handicapped Students as Tutors: Implementing total class tutoring

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Intellectually Handicapped Students as Tutors:
Implementing total class tutoring

While previous research has shown that handicapped students reap important benefits from tutoring their nonhandicapped peers, the question still remains as to why more special educators do not use tutoring in their classrooms. The purpose of this article is to describe the results obtained during the second year of a research project investigating the effects of reverse-role tutoring. During the first year of the project, students with a variety of handicapping conditions were trained to tutor nonhandicapped students in either reading or sign language. The results of these studies showed that handicapped tutors gained both social and academic benefits, when compared with those who did not function as tutors (Custer & Osguthorpe, 1983; and Osguthorpe, et al, 1984).

However, simply because tutoring has been shown to have positive effects does not necessarily mean that teachers will begin to use it in their classrooms. Intervention strategies must be comfortable to implement, as well as effective, if widespread dissemination is to occur. Although different models have been described for implementing tutoring projects, little research has been reported testing the effectiveness of such models (Osguthorpe, 1985). Only anecdotal information was gather during the first year of the present study regarding implementation strategies. It was this data that suggested a need for experimenting with alternate tutoring models.

For example, a resource model of tutoring was used during the first year of the current project in which four handicapped students (from a self-contained classroom) went to a resource room to tutor four nonhandicappeds students at a time. While the resource model had certain advantages as an implementation strategy, it required the added salary of a full-time teacher aide and meant that both handicapped and

nonhandicapped students had to leave their regular classrooms for a period of time each day.

The question arose during the second year regarding the possibility of havingall students in a self-contained class tutor simultaneously. Using this "total class tutoring" method, a class of 15 intellectually handicapped (IH) students would tutor another 15 nonhandicapped students under the supervision of their assigned teachers, rather than depending on the services of an additional classroom aide. Since the resource model had been used previously, the following comparative questions could be posed:

1) Will IH students be able to function as effectively as sign language tutors, when using total class tutoring, as opposed to resource tutoring?

2) What are the attitudes of students, both handicapped and nonhandicapped toward total class tutoring?

3) What are teachers' attitudes toward total class tutoring, compared with their feelings about the resource model?

4) When using total class tutoring, will IH students experience increased social acceptance, as they had with resource tutoring?

Method

Subjects and Settings

The studies were conducted in a suburban school district that was primarily Caucasian middle class consisting of agriculture and light industry occupations. Three self-contained IH students' classrooms were randomly selected for participation in the studies. Classrooms A and B were in the same school, while classroom C was in another school. Of the three teachers, one (in classroom A) had in the previous year involved her students in the peer tutoring project using the "resource system" while the other two teachers (in classroom B and C) had no previous peer tutoring experience.

All of the students in each of the IH classes participated in the studies: 40 IH students. These students were classified according to state guidelines for classifying

handicapped students. Of the 11 students in Classroom A, 3 were classified as severely intellectually handicapped while 8 were classified as intellectually handicapped. These students' IQ's ranged from 50 to 70. Classroom B contained 15 students of which all were classified as intellectually handicapped, with IQ's ranging from 50 to 75. Classroom C contained 14 students of which 1 was classified as multiply handicapped, 2 were classified as severely intellectually handicapped and 11 were classified as intellectually handicapped. Their IQ's ranged from 60 to75. For the sake of simplicity, students in all three classrooms will be referred to in this article as intellectually handicapped (IH). However, it should be kept in mind that students in each group possessed unique strengths and weaknesses. For example, five students in Classroom A, four students in Classroom B and two in Classroom C had been diagnosed as having Downs syndrome, while the cause of retardation for the other students had not been specified. Communication and social skills in all three classes ranged from mildly to severely delayed, with some students being able to receive and express themselves in both spoken and written language, while other students were essentially nonvocal and unable to read or write at a first grade level.

The 60 regular class students included as tutees in the studies were selected from age-mates of the handicapped students. There were selected by asking regular classroom teachers to nominate students whom they thought would benefit from participating in the program and whose regular academic work would not suffer from participation.

Tutoring Materials and Procedures

Training materials for implementing the studies were developed from existing materials used in the previous year's study. Prompt cards were used on which the handicapped tutor saw a photograph of the object or word, graphic representation of the hand shapes (signs), and the printed word to be signed. The reverse side of the cards displayed only the printed word to be signed. Groups of cards were mounted on rings attached to wooden table easels enabling the cards to stand independently and

the tutor to flip from one card to the next. Sign language vocabulary used in these materials included numbers, colors, the alphabet, a number of complete sentences and 175 nouns and verbs familar to the handicapped students.

Before tutoring began, the tutors were taught to sign the alphabet, their names, and approximately 45 simple signs. Training sessions of twenty minutes in length were conducted each day for five weeks, involving the entire class. Because Classroom A students had been involved in the tutoring the previous year, they were refreshed on their tutoring and sign language skills for three weeks and then began assisting with the training of Classroom B students who were learning the skills for the first time. By the sixth week, the aide (hired part-time for the studies) started working with one or two students at a time, training the students in both signing and tutoring skills. The classroom teachers permitted time for the aide to continue training throughout the duration of the study in order to keep the tutors ahead of the tutees in learning new signs. Two-thirds of the vocabulary were taught to the tutors after the tutoring had begun.

Measures and Procedures

Four instruments were used to measure the effects of the treatment on interaction, self esteem and the degree to which the treatment was effectively implemented. Free-play interaction data between handicapped and regular class students were collected for each handicapped tutor using a Free-play Interaction Form. This form included the date, duration of interactions between handicapped and regular class students, the names of the students involved in the interactions, notation if the regular class students involved in the interaction were tutees or students not in the tutoring study, and a positive or negative interaction rating from the observer. Because it was necessary for the observer to be well acquainted with both the tutees and the tutors in order to identify them from various distances on the playground, the aide was trained as the free-play observer. This enabled observations to be made regularly at lunch and recess free-play time.

One interview instrument was used for conducting interviews with the tutors' parents at the end of the study. A random selection of 20 parents was made with approximately 50% of the parents of each class represented in this sample. This is the same interview instrument used in the previous years' study which this data was compared with. The Interview Guide consisted of forced-choice and open-ended questions eliciting general reactions to the tutoring program. Using this guide, interviewers asked tutors' parents to describe their child's feelings about the experience and if they had noticed any changes in social interaction. Analysis of the interviews was made by calculating the frequency of various responses given and assigning each response to the most appropriate category. Once categorized, percentages of responses in each area were calculated.

Teachers were interviewed using a Teachers' Interview Guide with respect to their perceptions of social acceptance and self esteem effects as well as with respect to the feasibility of implementation of "total class tutoring". The teachers were asked to describe changes which they saw in their students which they attributed, at least in part, to the tutoring experience. They were also asked to describe how they implemented the tutoring program from start to finish and what problems and successful experiences they had had along they way. Analysis of the teacher interviews were made using the same procedure for the parental interviews.

The fourth measure taken was observations of the tutoring. Observations were made of each tutoring session by the aide and teachers. These observations helped address feasibility of implementation questions, such as: Are two adults able to successfully monitor the tutoring of approximately 20 students? The content of this data was analyzed and will be used in both reduced and anecdotal form in this article.

Results and Discussion

In this section the results will be given of free-play observations, parents interviews, teacher interviews and tutoring observations. The results were found to be consistent across the three classes and therefore will be summarized and presented together. In

the case of the teacher interviews, however, results will be presented separately for each study in order to highlight the uniqueness of each teacher's experience.

Free-play observations

The results of the free-play observations were summarized in the following ways: 1) All data were converted to percentages of observation time spend in positive interaction with regular-class students; 2) means were calculated for "before" and "during" treatment totals. The means are based on an average of seven 12 minute observations prior to treatment and thirteen 12 minute observations during the treatment period. Because of important differences among the classes, the data for each class were analyzed separately by computing a paired t-test comparing "before" and "during" treatment means for each of the three classes.

The resutls of the analyses showed that all three classes spent significantly more time interacting with nonhandicapped students after the tutoring began. As can be seen from Figure 1, Class A spent an average of 19% of their time interacting with nonhandicapped students *prior* to the tutoring and 35% *during* the treatment period. When these results are compared with those obtained the previous year, it is interesting to note that the percentage of interaction continued to increase. When "before" treatment observations were made the previous year, this class was positively interacting with regular class students 4% of the time. "During" treatment observations made the previous year indicated a significant increase to 11% of the time, $t(16)=-2.66$, $p<.017$. Since the setting and students reamined largely unchanged from the first to the second year, these finds are especially important. The data suggest that, rather than having an early ceiling effect, reverse-role tutoring can continue to impact positively on the social acceptance of handicapped students.

As shown in Figure 1, results of free-play observation were even more disparate for Classes B and C. Generally speaking, these two classes were not interacting with nonhandicapped students prior to the tutoring, and spent more than 20% of their time with nonhandicapped peers during the treatment period (Class B, $t(14)= -6.29$, $p<.001$;

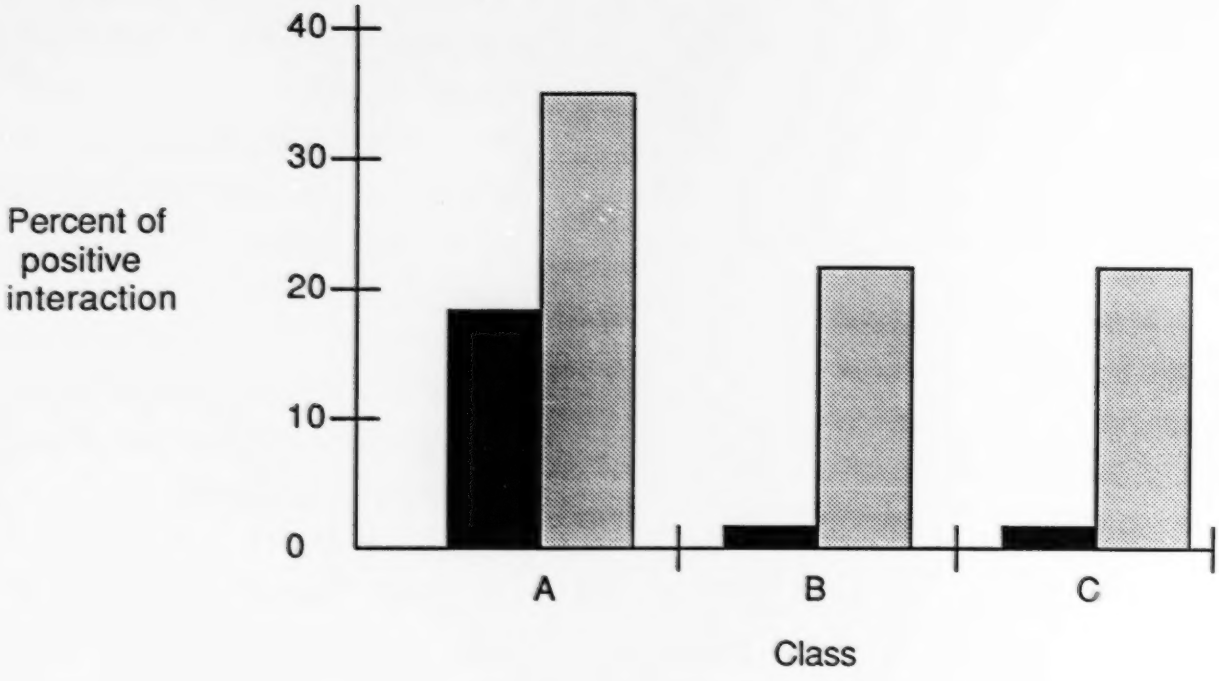

Figure 1. Mean amounts of positive interaction between handicapped tutors and regular class students before and during treatment.

Class C, $t(14)=-4.53$, $p<.001$). Thus, after a 12 - 14 week treatment period, intellectually handicapped students in Classes B and C spent 5 times as much of their free-play period with nonhandicapped peers.

These findings are especially meaningful when compared with the results of Class A. One could hypothesize that once integration increases with a subgroup in a school, the phenonmenon will generalize to other groups within the same school and all handicapped students will experience a greater degree of social acceptance. The resutls of this study would not support such a position. Since Classes A and B were in the same schol, one might expect that Class B would reap some of the benefits being experienced by Class A. But the observations taken prior to the tutoring revealed that while Class A seemed to have a carry-over effect from the previous year, the positive effects did not transfer to Class B. Not until tutoring began did Class B begin to interact with their nonhandicapped peers to any appreciable way. Since the students in Class B were younger than those in Class A, it would be logical to assume that nonhandicapped tutees would not see themselves as peers of the younger group, and therefore no be inclined to play with them. Whatever the explanation of the differences between the two classes, it is important to note that the introduction of the tutoring treatment had effects that were practically, as well as statistically significant.

Parent Interviews

Parents of 20 tutors were interviewed. In describing their childs' feelings about the tutoring program, ali parents reported that their child had positive or very positive feelings toward the program. These results are consistent with the previous year's results which indicated the same.

When asked if their child's social interaction had been affected, 80% (16) of the parents who were interviewed reported noticing some improvement. Three of these parents remarked that while the improvements in interactions were relatively minor, those small changes were significant because of their child's severe lack of social interactions previous to the tutoring project.

When asked if the tutoring experience had had an effect on how children "felt about themselves", 90% (18) of the parents reported that they perceived a noticeable improvement in their child's self-esteem. While two parents reported no perceived change, they also explained that self-esteem was not an area in which they had felt their child needed improvement. In the previous year, 64% of the parents reported such a change.

Because in the previous year approximately half of the parents described improvements in their child's communication skills, this year, an item was added to the interview protocal to address this issue. A total of 70% (14) of the parents interviewed reported improvements in their child's communication skills while 30% (6) reported no noticeable change in this area.

Teacher Interviews

The results of the interviews with the teachers indicated that all three of the teachers perceived a number of benefits to the students due to their involvement in the tutoring program. Teacher A noted an increase in interaction between her students and students from other classes. "The children in the other classes have been really nice. They come over and invite my students to go outside and play, or to jump the rope. This didn't happen as much before the tutoring program." Teacher C explained that one of the main benefits she perceived of the program was the communication between her students and other regular class students. She said, "When the students have the chance to interact about something they are both interested in doing, learning sign language, they open up a channel between them. "

Because the handicapped students are in the tutoring role, compensation has been made for some of the imbalance between the students so that they can have friendly interactions. Teacher B commented, " My students have more visibility in the school now, and its a positive kind of visibility for once. They are viewed as different and unique, but not in a negative sense. Let me tell you, this is not the way it usually is in schools." According to the teacher of Class A, her students seem to be somewhat

intrieging to the regular students. "We didn't expect the regular students and mine to be on equal terms. They couldn't be that. The regular kids come into our classroom knowing that my students are handicapped. But they are having friendly relationships. The regular students have a proper perception of my students. Sometimes the regular students write little notes to my students. One day, they made a little award for Donna when she was in the international Special Olympics. Its things like that that tell me the tutoring is doing good things."

Not only did the teachers see changes occur in the acceptance of the students around the immediate classroom, she noted an increase in general acceptance in the school and in self-esteem. Teacher A explained, "The signing skill enabled my students to participate in the Christmas program with the choir this year. That put them out in front of everyone, which was really good for them all." Teacher C reported that the signing skill enabled her children to participate in several school programs in which they were able to actually have a unique talent. Teacher C also referred to self-esteem gains, commenting that self-esteem improved because they were teaching other students. Teacher B explained how this relates to her students. "This usually doesn't happen for our children. Usually they are being taught. Now they get to be the teacher. That really builds confidence."

While the teachers each emphasized the importance of all the benefits of the tutoring program Teacher B clarified that the results are gradual." They develop in a lot of ways from this experience. Its clear to me. They learn to take the risk of learning something new, of developing new relationships. I've seen growth, emotional growth. But it happens very gradually; day to day." Teacher A noticed that the change in the regular students attitudes was also gradual. "For a while, I wasn't sure how much of an attitude change was occurring in the regular students. Every once in awhile I'd hear a positive comment or see a friendly interaction, and then I'd realize that I was seeing the result. These became more and more frequent as time went on." Teacher C found the same to be true in her school and recalls an incident. "One day I ran into a lady who

was the mother of one of the girls who is a tutee in the program. She told me , 'I'm so glad she is in the tutoring program. It was really changed her ideas about those kids of yours. She really enjoys it and I wouldn't have her miss it for anything. The change in attitude and understanding of the special ed. kids is well worth it.' "

When asked to describe problems or difficulties which arose during implementation of the tutoring program, all of the teachers explained that the only problem was with the organization of sign language materials. Because of the large number of sets of materials and the eleven tutoring pairs, at times it was difficult to assure that each tutoring pair was covering all of the materials. Teacher B explained, "After we identified the problem, we started a log which each tutoring pair would keep of their daily tutoring activities. This way we were able to keep track of what they were doing." Other than this one problem, all teachers found the total class tutoring convenient and effective. Teacher A clarified, "But I couldn't have done it alone. With the added help of the aide, it works. Otherwise, no way."

When asked to estimate the maximum number of students they could include in total class tutoring all of the teachers suggested that approximately 25-30 students (both tutors and tutees) was about all two adults could supervise effectively. When given the choice between total class tutoring and one of the other configurations, all three teachers chose total class tutoring. Teacher A, who had experienced Resource Tutoring the previous year, explained the advantages of total class tutoring. " First of all, I get to be apart of the tutoring whereas with resource tutoring I had to stay with the rest of the students while just a few tutored at a time. Second, its much more efficient to have one time in the day set aside to do the tutoring and to get it all over with at once. Third, I think the students handle it better when they all are doing the tutoring at the same time. Otherwise, someone always felt like they were missing out. That tended to cause a lot of commotion." While each of the other two teachers commented similarly, Teacher C added, "Having all the kids, about 30 in total, working together is really nice because they all get to meet and interact with one another. If we had resource tutoring, that benefit would be limited drastically."

Regular Class Teacher Interviews

The results of the interviews with the regular class teachers whose students participated as tutees in the study indicated that all of the teachers viewed the greatest benefit to their students as the opportunity to make friendships with some of the handicapped students. One teacher mentioned, " The IH students play by themselves most of the time. They don't have much experience interacting with others. My students don't have much experience interacting with other students who aren't exactly on their level." Another teacher explained that she noticed friendships growing during the year, although it was gradual. Further, she mentioned, "I've noticed my students caring more about the IH students welfare. Occassionally I heard them make comments defending the IH students when some sort of a derogatory comment had been made by another student who had not been in the tutoring program."

The only suggestion made by the teachers was to involve more of their students. This would improve the program for several reasons. First, some of the students grew tired of the signing mainly because they were learning the signs so quickly and there weren't enough materials for them to be always learning something new. Second, the enthusiasm to do the signing and to be involved in the tutoring program was contagious. One teacher explained, "It didn't take long before my entire class was pleading to go do the signing." Third, it would provide more students the opportunity to receive the benefits which come to those involved. A teacher mentioned, "I have seen a real change in attitude toward the IH students. I wish I could get all of my students involved because it would help them all."

Tutoring Observations

Observations made by the aide and the researchers indicated that the handicapped students were able to function effectively as tutors of sign language. The daily log kept by the students included a rating from the aide regarding the tutoring skills. These ratings indicated that the students were able to maintain the tutor/tutee

relationships (with the tutees taking charge of the tutors, which might have been the case) and that the tutors consistently performed the tutoring skills of giving feedback, monitoring learner performance and clear demonstration of the signs being taught.

While the total class tutoring configuration could have posed a problem for monitoring the tutoring and for determining how effective the tutoring relationships were, the tutoring logs were found to be very helpful to the adult monitors making these observations.

Conclusions

The following conclusions can be drawn from the three studies described above:

1.When given appropriate training, IH students can function effectively as tutors in a "total class tutoring " configuration provided there is the minimal supervision of at least two adults for twenty students. Given this circumstance, IH students can learn to demonstrate instructional content, monitor tutee performance, and give appropriate feedback. While some students develop these skills more readily than other students, even those with more severe handicaps were able to function as tutors in a "total class tutoring" configuration.

2. Both tutors and tutees experience growth in the topic being tutored. This conclusion is important because it was possible that the lack of close supervision could have resulted in the amount of material learned. Further, it supports previous findings which suggest that teaching someone else is an effective strategy for improving learning among a wide variety of handicapped students.

3. Socially isolated handicapped students often experience increased social acceptance as a result of tutoring nonhandicapped peers in a "total class tutoring" configuration. While not all of the handicapped tutors showed marked increases in social interaction, some made impressive gains. These gains are comparable with the previous year's findings.

4. Parental attitudes towards the "total class tutoring " experience were very positive suggesting that they perceived a definite value in the experience for their children.

5. Teachers perceived "total class peer tutoring" as an effective intervention strategy in special education for improving social acceptance of socially isolated handicapped students. Further, the teachers perceived "total class tutoring" as an effective tutoring configuration to use in their classrooms.

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